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ABSTRACT

Learning Counseling, a special, small-group type of academically oriented counseling for underachieving high school students, counseled 819 students in the Pittsburgh Public schools during 1969-1971. Materials to train teachers to become Learning Counselors were developed: a manual, a series of video tapes, several casebooks, and 4 essays explaining the behavioral systems approach on which Learning Counseling is based. Two summer workshops were held to train 40 graduate students and teachers for extending Learning Counseling into higher education and teacher training. The data were subjected to an intensive analysis. The first analysis, concerning the Learning Behavior Inventory demonstrated a consistant agreement between students and teachers as to what overt and covert behaviors were shown by underachieving students. The 2nd analysis demonstrated highly significant changes in an increased students' positive attitude towards education, a reduced fear of tests and evaluation on the Fear Survey Inventory, and an increase in the desirable behaviors shown by good students. In summary, Learning Counseling Appears to be a popular counseling program for underachievers that produces documented affective and behavioral change. (Author)

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David J. Reynolds, Ph.D.
Department of Psychology
Temple University
Philadelphia, Pennsylvania 19122

EVALUATING & EXTENDING LEARNING COUNSELING

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December 1971

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education

National Center for Educational Research and Development
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David J. Reynolds, Ph.D.
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Temple University
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HEALTH, EDUCATION, AND WELFARE

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Introduction

The purpose of this grant support was to evaluate and extend Learning Counseling. Learning Counseling has been developed as a special type of small group counseling for under-achieving high school students. Groups of 5-10 students are formed so that each has the same subject taught by the same teacher. Heavy emphasis is placed on cooperative group coping with the common task. The Learning Counselor (a teacher trained in special group behavioral modification techniques) focuses on the students' study techniques and classroom behavior in learning the assigned material. A five-step sequence of study behavior is introduced and students' difficulties in adopting it are worked through during the twice-a-week, six week program. Generalization and extension of the changed study habits are consolidated in a Learning Counseling Lab, which is a special study hall where a Learning Counselor is available for consultation. Almost three years of work in the Pittsburgh School System have indicate moderate increases in achievement for the students and enthusiastic endorsement of the program by students and teachers.

The period since January 1st, 1970 has been a productive time for Learning Counseling with continued training, evaluation and research, and expansion of both the concept and program into other educational areas. Since the support provided by the grant has been a key factor in providing time and materials for our total effort, it is difficult to specify what has been directly supported by the grant and what has indirectly flowed from its initial impact. Therefore, this final report will consist of the description of all of the activities that have taken place in Learning Counseling during this period of time. The formal report will be short, but amply documented by completed studies and reports, included in the appendices or separately. The major body of the report will contain descriptions of the two major activities carried out under this program-- 1. Materials Development, training and expansion, and 2. Evaluation and research. The traditional categories of methodology and results will be combined in the descriptions under each of the two major classifications. The final conclusions section will summarize both areas.

During the last two years, 819 students have received Learning Counseling. Although most of these students have been enrolled in four Pittsburgh, Pa. secondary schools, many of them are from other institutions that have developed limited programs. This grant has benefited these counseling programs in several ways. First, the research data has strengthened the programs internally; for example, the statistical means established for particular schools now provide counselors with more objective standards to analyze their students and measure their improvement. Secondly, it has provided positive feedback to the academic institutions that continue to support it. It is on this basis that the Pittsburgh School Board decided to retain Learning Counseling at a time when many other student support programs were dropped because of lack of funds. Thirdly, it has provided more information for dissemination to other institutions that choose to adopt it. This has been particularly true on the higher education level, where colleges and universities with special admissions program find Learning Counseling particularly relavent

to the needs of their marginal students. Finally, it has facilitated the training of other professionals who want to become Learning Counselors or better classroom teachers. The materials developed with the resources from this grant have improved the training workshops and have made it possible to develop short-term training programs to meet specific professional or institutional needs.

Materials Development, Training, and Expansion

Materials

One of the basic materials developed during the initial stage of the grant period was the revised Manual (See Reynolds, D., Garfield, L; and Jeffress, C. Learning Counseling Manual, revised edition. Pittsburgh: Pittsburgh Board of Public Education, 1970.) The original manual was edited and revised to include a section describing the variations in the study method, an additional essay distinguishing counseling from teaching, and a final section dealing with the counseling of characteristic types of individual students. Another key training aid was the group of video tapes of five Learning Counseling groups: four series of training tapes which follow the counseling progress of four high school groups (Trigonometry, Geometry, U.S. History, World Cultures) and one series of tapes in higher education which follow the counseling of disadvantaged adult students in a special admissions program (New Careers) at the University of Pittsburgh. In addition, specially edited composite tapes made from each series have been used for orientation and dissemination purposes. (See Jeffress, C., Garfield, L. and Reynolds, D. Learning Counseling Video Tape Directory. Pittsburgh: Pittsburgh Board of Public Education, 1971.) The third major part of materials development has been the production of Learning Counseling Casebooks which include the final reports written by the counselors. These casebooks are resource materials which the counselors consult when they face a new counseling group or subject which represents a new problem for them. (See Garfield, L., Reynolds, D. and Roell, J. Counselors' Case Book. Pittsburgh: Pittsburgh Bd. of P. E., 1970-71.) The fourth major aspect of materials development is a statement of the Behavioral Systems Approach used to develop the Learning Counseling Program and the expanded activities that have been gererated by this approach. It consists of four essays which will become chapters in an expanded book now in preparation. (See Reynolds, D. and Garfield, L. The Management of Learning, in preparation, chapters 1 through 4.)

Training

One of the major results of the materials development was the improved training of Learning Counselors. Two summer workshops, one in 1970 and another in 1971 were sponsered by the Dept. of Educational and Developmental Psychology of the University of Pittsburgh. The six week, half time, workshop was approved for graduate credit by the University and for increment credit by the Pittsburgh Board of Public Education. The forty workshop participants consisted of public school teachers, who either wanted to become Learning Counselors or wanted to improve their own classroom interaction, or university personnel, who wished to work with disadvantaged students within their special admissions programs. The workshop format included a course in behavioral systems analysis and behavior modification and a course in Learning Counseling. Learning Counseling was initially experienced by the

participants as a training group experience in which they studied the behavioral content with staff members serving as Learning Counselors. Their personal experience was then generalized into the role of the Learning Counselor and discussion of the prepared training video tapes. This was by observation of followed by observation of two of the participants' initial counseling experience with live groups of freshman students. Counselor training was completed through a practicum offered during the Fall trimester, during which participants each counseled their own groups in a variety of educational institutions. This experience provided supervised exposure in adapting Learning Counseling to their own individual style of interaction. The groups counseled by the 1970 practicum participants are summarized in a special volume of the case book series. (see Reynolds, D., Garfield, L. and McHugh, E. A Learning Counseling Casebook. Pittsburgh: Board of Public Education, 1971). The 1971 practicum is now in progress. Most of the Learning Counselors working in the Pittsburgh public schools and at the University of Pittsburgh have been trained in the combination Summer workshop, Fall practicum training program. (see Reynolds D., Garfield L., Scott, R., Annual Report, L. C. Program, 1969-70.)

Expansion

The expansion of the original Learning Counseling Program has followed two paths--extending Learning Counseling into higher education and teacher training. The initial entrance into higher education was facilitated by Reverend Thomas Sawyer, then serving as advisor to Black Students in the School of General Studies, University of Pittsburgh. A pilot program was established in the Spring, 1970; it became an integral part of the General Studies counseling program, and extended to another University of Pittsburgh program for part time, disadvantaged students (New Careers), in the fall of the same year. A description of the adaptations of Learning Counseling procedures and results are contained in an as yet unpublished research report. (see Reynolds, D., and Garfield, L. Learning Counseling: A Student Support Service for Higher Education.) Once pilot programs directed by our own Learning Counseling Staff proved effective, staff members from both the General Studies and New Careers program were trained as Learning Counselings and counseled these students themselves.

The increasing relevance of Learning Counseling for higher education was recognized by a special conference held in April, 1971 by the Dept. of Higher Education, University of Pittsburgh. Fifty representatives from over twenty-five institutions in the tri-state area around Pittsburgh attended this institute, entitled, "Learning Counseling: A Plan For Better Student-Support Services (see flyer). In addition to the usual Learning Counseling staff, four professional educators who had actively used Learning Counseling in higher education presented a panel discussion and answered questions. The Department of Higher Education reported that the institute was rated very highly by those who attended; it received many requests for articles on Learning Counseling as well as requests for trained counselors to join their staff of student support services.

Another institution of Higher Education, Bowie State College, Bowie, Md., learned about Learning Counseling through a previously

published article (Reynolds, D. and Garfield, L. Learning Counseling . NASSP Bulletin, 1969, 53, 1-21) and requested help in establishing Learning Counseling as a student support program at Bowie State. In July, 1971, Dr. Reynolds and Mrs. Garfield conducted a three day training workshop at Bowie State. (see flyer) The first day consisted of a general orientation for approximately twenty-five faculty members and counselors. The orientation included lectures, discussion, an orientation video tape, and a live demonstration of actual counseling with Bowie State students. The second and third days were spent in more intensive training of six of the participants who expressed an interest in implementing the program. All of the necessary materials to develop their own program were left at Bowie State. A pilot Learning Counseling program has now been established by two counselors, and follow up supervision and evaluation is planned for November, 1971.

Teacher training represents another kind of expansion of Learning Counseling principles--the improvement of classroom teaching. Learning Counseling strategies for managing the learning of any subject area make it possible to develop teacher training programs that include teachers from a variety of disciplines. Learning Counseling materials facilitated this initial training experience; but as training programs developed, new materials directly applicable to classroom teaching were designed. The first teacher training program was for day-to-day substitute teachers in the secondary schools. During a five day workshop in April, 1970, these teachers worked with sections from the revised Learning Counseling Manual and viewed selected Learning Counseling training tapes. The workshop was followed by a five week supervised apprenticeship program. During this period, a Substitute Teacher Training Manual was developed. (See Reynolds, D. and Garfield, L. Substitute Teacher Manual, Pittsburgh, 1970) The results of this program were reported in an article. (see Reynolds, D. and Garfield, L. Retraining substitute teachers for the urban high school, NASSP Bulletin, 1971, 55, 80-88.) A follow-up study conducted by the Office of Research, Pittsburgh Board of Public Education, verified its worth.

During the 1970-71 school year, three additional teacher training programs were held. Two of these programs were in-house training programs designed to improve the classroom teaching of teachers newly assigned to a school. Video tapes of the participants teaching their classes were used both as a reinforcement of good teaching and as models which were used to present effective classroom management strategies. They proved valuable guides for analyzing each participant's performance and in providing the shaping feedback necessary. The purpose of the third training program was to provide dependable volunteer substitute teachers for an elementary school. These volunteers , mostly mothers of the children attending the school, relieved the regular classroom teachers who were attending their own in-service training program. The program format was similar, i.e. each volunteer was video taped when her classroom performance became effective, and these tapes became the focus of weekly training seminars. Because the permanent teachers also had the opportunity to view the tapes, they facilitated positive communication between the volunteers and the classroom teachers they replaced. At the conclusion of this program, a composite video tape demonstrating the instructional techniques taught in this program was made to provide materials for future dissemination

and training. The results and methods of these three training programs are discussed in a report comparing the three programs. (See Garfield, L., Roell, J., and Reynolds, D. A comparative study of teacher training programs conducted by the Learning Counseling staff, 1970-71. Pittsburgh Board of Public Education Report, 1971.)

II. EVALUATION AND RESEARCH

Evaluation

There were three main goals set for the evaluation of Learning Counseling by this project: 1) to explore the usefulness of the 12-item Learning Behavior Inventory as a conceptualization of the student role, 2) to conduct a conservative test of the effectiveness of Learning Counseling in producing behavioral and affective changes in students, and 3) to factor analyze and estimate reliabilities for the two major inventories used in Learning Counseling, the Fear Survey Inventory and the Learning Behavior Inventory.

The first task was completed and presented as a paper at Eastern Psychological Association in April, 1970 at Atlantic City, New Jersey. (See Appendix I) It demonstrated that there was a consistent pattern of agreement between students and teachers in different school as to what behaviors were shown by the underachieving students. It aided in conceptualizing a minimal student role, where overt behaviors could be managed by the teacher in the usual classroom, and an expanded student role, where covert behaviors are controlled by the student. The achievement of an expanded student role requires that a counselor or teacher provide an arena where covert behavior (such as organizing materials) can be made overt and brought under the control of corrective feedback and training.

The second task was completed and presented as a paper at the American Educational Research Association convention in New York City in February, 1971. (See Appendix 2) It provided an anlysis of the change in group means of the 82 groups who received Learning Counseling in 1969-70 on the three basic measures used in Learning Counseling--the Semantic Differential attitude measure, the Fear Survey Inventory, and the Learning Behavior Inventory. The studnet self-rating showed significant increases on three items of the Learning Behavior Inventory plus the total score, and significant changes on all items of the Semantic Differential and Fear Survey Inventory except one. The teacher rating on the Learning Behavior Inventory showed significant increases on every item. This was interpreted that the theachers saw marked behavioral change in the students, while the students reported more of a phenomenological change in reduced fear and increased positive attitude towards school and educational experiences. In addition, grade changes for 246 students who received Learning Counseling were compared with control students from their same classes who had earned the same letter grade during the first report period. This yoked-control technique demonstrated that Learning Counseling tends to reduce the number of final D's and E's received at the end of the year, significant at the .05 level.

The third task was completed recently and is being incorporated into a paper submitted to Eastern Psychological Association for its current meeting. Tables IA, IB, and IC show the pre-post

changes for all the students receiving Learning Counseling in 1969-1970 and 1970-1971 on an individual basis. A pattern similar to that described for the group means data can be seen--highly significant changes on the student self-rating of attitude and anxiety and on the teacher rating of behavioral changes, while only selected changes in behavior are reported by the students.

Table II shows the factor loadings for the Fear Survey Inventory. (The individual items of the Semantic Differential are still being punched and analyzed--a much more extensive data analysis job.) Initial estimates of communality derived from the 1969-70 data were taken as squared multiple correlations; the factor solutions were iterated until stable estimates of communality were achieved. The three factors accounted for 50% of the total variance. Table III shows the calculation of coefficient alpha on the total 1970 data for the factor solutions achieved on the 1969 data. It shows very acceptable coefficients of .82 for the teacher rating of the Learning Behavior Inventory, .78 for the student self-report on the Learning Behavior Inventory and .64 on the Fear Survey Inventory. This analysis demonstrates that the two scales have a high degree of internal consistency and that the scales hold up extremely well on cross-validation. In other words, the scales are measuring some phenomena that appear to be really there and are doing a good job of measuring the phenomena well.

In summary, it appears that Learning Counseling performs its tasks well. Repeated analyses of different samples from different schools and two different school years indicate it increases positive attitude to school, reduced fear and anxiety of evaluation, and produces a behavioral change in the student which facilitates instruction and learning.

Other Research

The counseling program of Learning Counseling conducted at the University of Pittsburgh and the Pittsburgh Board of Public Education has stimulated considerable other research during this period of time. Two dissertations were completed on this topic at the University of Pittsburgh's Dept. of Educational and Developmental Psychology: 1) Susan B. Reinhart, "The effects of Learning Counseling on course grade, overall Q.P.A., achievement test scores and Learning Counseling instruments for college freshmen," and 2) Conway Jeffress, "A description of techniques and materials used in the training of Learning Counselors." The first showed moderate improvements for the students receiving Learning Counseling but was contaminated by enthusiasm--the students began showing other students the study techniques in the dormitories and soon many of the control students were in informal Learning Counseling groups! The second contributed to the development of a directory of video and audio tapes available for training purposes (See Jeffress, Conway, Reynolds, David, and Garfield, Learita. Directory of Video and Audio Tapes in Learning Counseling. Pittsburgh, 1971)

Another research study was conducted by the Office of Research of the Pittsburgh Public Schools (See Walfish, Stephen. Learning

Counseling Program. Pittsburgh, 1971.) It demonstrated little increased achievement for students receiving Learning Counseling on standardized achievement tests in biology, geometry, and algebra I, but suffered from a short period of time between pre-and post testing--only two months--and from an attrition rate of 15% in its subject population. The evaluator did not consider it a final test of the achievement increase possible with Learning Counseling.

A final research study was conducted by a teacher at Columbus Middle School who took the Learning Counseling workshop the following summer. She gave a questionnaire to 53 students who had received Learning Counseling one year before. Forty-nine reported it had helped them during the school year; four reported no help from it. Thirty-six reported their grades had improved; the rest reported their grades were the same as before.

In summary, it appears that Learning Counseling has demonstrated heuristic value in stimulating the research of others to examine the behavioral systems framework on which it is based.

TABLE IA

STUDENT SELF-REPORT OF
ATTITUDE AND ANXIETY COMPONENTS PRE-POST WITH T-TEST FOR CORRELATED MEANS

VARIABLE		1969-1970		1970-1971	
Semantic Differential		N	T	N	T
SD1	"Studying"	383	6.40***	391	5.38***
SD2	"My class in___"	383	6.13***	391	4.25***
SD3	"Tests"	383	6.43***	391	6.34***
SD4	"Myself as student"	382	3.21***	391	2.02*
SD5	"Teachers"	383	0.24	391	1.98*
Fear Survey Inventory					
FS1	"Called upon in class"	349	-5.99***	348	-5.20***
FS2	"Announces test"	309	-4.85***	308	-5.69***
FS3	"Study for test"	274	-3.46***	290	-4.29***
FS4	"Take test"	316	-4.88***	322	-5.03***
FS5	"Test mistakes"	309	-2.45**	324	-2.01*
FS6	"Surprise test"	357	-5.67***	354	-3.71***
FST	TOTAL	380	-9.44***	389	-7.21***

* Significant at .05 level
** " " .01 "
*** " " .001 "

TABLE IB

STUDENT SELF-REPORT OF
BEHAVIORAL COMPONENT PRE-POST WITH T-TEST FOR CORRELATED MEANS

VARIABLE		1969-1970		1970-1971	
Learning Behavior Inventory		N	T	N	T
LB1	"Attends class"	382	-3.51***	391	-1.94*
LB2	"Pays attention"	382	0.10	391	-0.56
LB3	"Takes notes"	382	0.84	391	1.00
LB4	"Completes work"	382	0.48	391	0.51
LB5	"Participates"	382	0.75	391	1.09
LB6	"Asks for clarification"	382	-0.07	391	1.71*
LB7	"Cooperates"	382	0.22	391	0.94
LB8	"Formulates in own words"	382	1.94*	391	1.10
LB9	"Organizes materials"	382	3.74***	391	1.35
LB10	"Studies materials"	381	0.75	391	0.54
LB11	"Reviews materials"	382	2.44*	391	1.87*
LB12	"Takes tests carefully"	382	0.64	391	1.56
LBT	TOTAL	382	2.57*	390	1.82*

* Significant at .05 level
** " " .01 "
*** " " .001 "

TABLE IC

TEACHER REPORT OF BEHAVIOR COMPONENT
PRE-POST WITH T-TEST FOR CORRELATED MEANS

Learning Behavior Inventory		1969-1970 N	1969-1970 T	1970-1971 N	1970-1971 T
LBT 1	"Attends class"	351	4.70***	365	-0.86
LBT 2	"Pays attention"	351	4.63***	365	3.08**
LBT 3	"Takes notes"	345	6.17***	343	6.84***
LBT 4	"Completes work"	351	4.34***	365	6.32***
LBT 5	"Participates"	351	3.20***	360	6.54***
LBT 6	"Asks for clarification"	350	8.13***	353	6.92***
LBT 7	"Cooperates"	347	7.44***	365	5.84***
LBT 8	"Formulates in own words"	351	6.21***	325	6.26***
LBT 9	"Organizes materials"	346	7.12***	327	6.11***
LBT 10	"Studies materials"	342	6.70***	339	8.05***
LBT 11	"Reviews materials"	345	7.64***	328	6.62***
LBT 12	"Takes test carefully"	351	6.51***	344	5.62***
LBT T	TOTAL	351	9.25***	312	8.37***

* Significant at .05 level
** " " .01 "
*** " " .001 "

TABLE II

FACTOR ANALYSIS OF 1969 LEARNING COUNSELING DATA*

		Factor I	Factor II	Factor III
Fear Survey	1			-.50
	2			-.62
	3			-.65
	4			-.72
	5			-.48
	6			-.63
Learning Beh. Inventory (Student)				
	1		-.46	
	2		-.58	
	3		-.44	
	4		-.65	
	5		-.49	
	6		-.49	
	7		-.63	
	8		-.64	
	9		-.66	
	10		-.67	
	11		-.71	
	12		-.61	
Learning Beh. Inventory (Teacher)				
	1	-.66		
	2	-.86		
	3	-.78		
	4	-.87		
	5	-.83		
	6	-.79		
	7	-.85		
	8	-.85		
	9	-.87		
	10	-.86		
	11	-.89		
	12	-.84		

*-All loadings above |.30| are presented.

TABLE III

STATISTICS AND RELIABILITY ESTIMATES FOR THE DERIVED SCALES

Scale	Mean	S.D.	N.	Coefficient
Learning Behavior Inventory (Teacher)	34.03	11.7	356	.82
Learning Behavior Inventory (Student)	42.39	8.9	372	.78
Fear Survey	11.23	4.2	371	.64

List of Materials Included in Report
As Single Copies Due to Bulk

	Title	No. of Pages
1.	Reynolds, D., Garfield, L. and Jeffress, C. Learning Counseling Manual, revised edition. Pittsburgh: Pittsburgh Board of Public Education, 1970.	149
2.	Jeffress, C., Garfield, L., and Reunolds, D. Learning Counseling Video Tape Directory. Pittsburgh: Pittsburgh Board of Public Education 1971.	73
3.	Garfield, L., Reynolds, D. and Roell, J. Counselor's Case Book. Pittsburgh: Pittsburgh Board of Public Education, 1970-71.	174
4.	Reynolds, D. and Garfield, L. The Management of Learning. Unpublished book in preparation, Chaps. 1-4.	132
5.	Reynolds, D., Garfield, L. and McHugh, E. A Learning Counseling Casebook. Pittsburgh: Pittsburgh Board of Public Education, 1971.	82
6.	Reynolds, D., Garfield, L. and Scott, R. Annual Report of L. C. Program. Pittsburgh: Pittsburgh Board of Public Education, 1969-70.	74
7.	Reynolds, D. and Garfield, L. Learning Counseling: A Student Support Service for Higher Education. Unpublished research report.	19
8.	Reynolds, D. and Garfield, L. Substitute Teacher's Manual. Pittsburgh: Pittsburgh Board of Public Education, 1971.	24
9.	Reynolds, D. and Garfield, L. Retraining substitute teachers for the urban high school. NASSP Bulletin, 1971, 55, 80-88.	8
10.	Garfield, L., Roell, J. and Reynolds, D. A Comparative Study of Teacher Training Programs Conducted by the Learning Counseling Staff, 1970-71. Pittsburgh: Pittsburgh Board of Public Education, 1971.	31
11.	Walfish, Stephen. Evaluation of Learning Counseling Program. Pittsburgh: Pittsburgh Public Schools, 1971.	11

Appendix I

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EVALUATING BEHAVIOR CHANGE IN LEARNING COUNSELING THE LEARNING BEHAVIOR INVENTORY

by

David J. Reynolds, Temple University
and
Learita Garfield, Pittsburgh Board of Public Education

Presented at EPA, Atlantic City
April, 1970

The specific counseling technique used with the underachievers is Learning Counseling (Reynolds and Garfield, 1969). By focusing on the interaction between a student and a particular course he is taking, it literally teaches him how to study independently and behave more appropriately in the classroom. He shares the counseling experience with five to eight of his classmates in a task-oriented small group which meets twice a week for an average of eight weeks. The counselor, trained in reinforcement techniques, introduces a systematic study method and helps the group apply it to the specific content material currently assigned by their classroom teacher. The counselor not only teaches a study method but reinforces desirable learning behavior which will increase classroom achievement and win teacher approval. Rather than tutoring the students, the counselor adopts the role of fellow student and models the learning behaviors he wants the students to adopt. This focus on a specific task to improve general learning behavior distinguishes the learning counselor from the traditional guidance counselor and school psychologist.

As part of our program in the behavior modification of underachievement, it became desirable to develop a list of those critical behaviors which promote learning during a student's interaction with his learning environment. We call these behaviors "learning behaviors." These include all those behaviors which occur in the interaction between the student and his teacher and between the student and his learning materials (textbooks, workbooks, A.V. materials, etc.). It is thus a broader concept than its close relative traditional study skills. The high achieving high school student appears to differ from his low achieving classmates in both the number of desirable learning behaviors and in the frequency with which he uses them. For example, the high achieving student usually pays attention in class, completes his homework assignments, takes notes and asks clarifying questions. The low achieving student rarely pays attention in class or completes his homework and has, perhaps, never taken notes or asked clarifying questions.

To actually develop a usable list of learning behaviors, the critical incident technique (Flanagan, 1954) was employed. Ten experienced high school teachers and fifty high school students were asked to make two lists--one describing ten critical behaviors that a high achieving student would perform and ten behaviors that a low achieving student would perform instead of the more desirable behaviors. From these lists, an inventory of twelve of the most frequently mentioned behaviors was constructed. The twelve behaviors followed a rough time sequence--from "attending class" to "taking a test" (Table 1). Each of the items was to be checked according to its frequency of occurrence, broken into five categories. This procedure thus provided a tentative operational definition of our construct, much in the way that the Fear Survey Inventory (Lang, Lazovik, and Reynolds, 1965) defined phobic behavior. The advantage of this short, representative Learning Behavior Inventory is the ease with which both students and teachers can complete it as a check list. Table 1 shows the Learning Behavior Inventory as a teacher evaluation check list; as a student check list, the stem was changed to include the word "I." (See Table 1)

The Learning Behavior Inventory was designed as a pre-post measure of the effectiveness of Learning Counseling in changing the behavior of underachieving students. Each of the students who completed Learning Counseling filled out a Learning Behavior Inventory three times during the 1968-69 school year--one prior to counseling, one at the end of counseling and one at a two month follow up. At the same time intervals, the participating classroom teachers were asked to complete an inventory for each student from their classroom who was counseled in their subject area. Six hundred high school students in two different high schools and two hundred thirty-two middle school students in one school were evaluated. Five hundred eighty-two teacher ratings of these students were obtained.

At this stage in the development of the inventory, a prior interest was to investigate the consistency of a learning behavior pattern exhibited by the underachieving students being counseled, since this would give some indications of the validity of the Learning Behavior Inventory. To accomplish this purpose, only the precounseling measures were analyzed. The inventory was rearranged into a rank order hierarchy by frequency for each group sampled. There were eight separate rankings--one for students and one for teachers in each of the four schools. These eight different rankings were evaluated for their overall agreement by Kendall's Coefficient of Concordance, W (Kendall, 1948). W expresses the overall relationship among the different rankings, much as a correlation coefficient expresses the relationship between two rankings. Like the correlation coefficient, W goes from -1.00 to +1.00. The overall agreement among teachers and students was very high (W=0.73 and even higher for teachers alone or for students alone (W in both cases = 0.79). In other words, over the eight rankings there was approximately 70-80% agreement. This suggests that there is a consistent pattern of underachieving behavior. Table 2 lists the twelve behaviors of the Learning Behavior Inventory in rank order of frequency as determined by the mean ratings of all the raters. (See Table 2)

The major use of the inventory, as mentioned above, was to evaluate the effectiveness of Learning Counseling. Data from only two schools are reported in Figures 1 and 2. (The middle school data is not being reported in detail since all of the counselors were still in a trainee stage. In addition, there was obvious unreliability in the student evaluations of the inventory. Apparently, younger students cannot reliably rate their own learning behavior, partially due to the different nature of middle school assignments and instruction. Moreover, this school is located in a low socio-economic area affected by serious racial discord. In spite of these difficulties, the teacher evaluations immediately after counseling showed a significant total increase on the inventory, with specific increases in "taking notes," "asking for clarification," "formulating material in their own words," "organizing material into relevant units" and "studying outside of class.")

Figure 1 shows the inventory data for school A. Here a general increase in the frequency of the desirable learning behaviors took place immediately after counseling and continued at an even higher level upon the follow-up evaluation two months later. Six of the twelve behaviors showed an increase significant at the 0.01 level. School A is an urban high school with an upper working class population, mainly in heavy industry. The attitude of the school is very authoritarian, and the students tend to be conforming, passive students who lean heavily to shop and business courses. Fewer than 50% ever go on to higher education, even though counselors plead for the better students to consider college. The school is very stable, and courses go on without any interruption. (See Figure 1)

Figure 2 shows the results of the evaluation of school B. Here a general increase in the frequency of desirable learning behaviors took place immediately after counseling, but only one behavior--"formulating material in their own words"--changed significantly at the 0.05 level. The follow-up evaluation showed a return to a frequency level very similar to the precounseling base level. School B is an urban high school with a definite race problem. The student body is approximately 60% white and 40% black. During 1968-69, there were three major riots with injuries and police being called out. There were a number of minor incidents, and police presence in the hallways became a common sight. Tension and anxiety gripped the entire school, and it was generally agreed that after the beginning of April little academic work was attempted by teachers in their classes. (See Figure 2)

DISCUSSION

The rank ordering of frequency of occurrence and the high overall agreement between students and teachers in different schools leads to the tentative conclusion that there is definite pattern or behavior shown by the underachiever, despite the particular school that he may be in. The pattern lends itself to a behavioral interpretation in terms of the development of behaviors as skills. The first six behaviors--from "attending class" through "completing assignments" to "reviewing for tests"--roughly form what might be called a "minimal-student role." This is an acceptable definition of co-operation for most teachers. If performed at the frequency level, "generally,"

this student will avoid negative sanctions of teacher disapproval, such as being singled out for criticism in the class, being sent to the vice principal's office for detention or having a parent called to a teacher-parent conference. Because these behaviors are overt and easily recognized by the teacher, they are amenable to control by any kind of control system, whether it be positive or aversive. For example, if a student does not complete his homework in order to gain praise from the teacher, he may do so because of the threat of lower grades or being kept after school.

The last six behaviors--from "studying outside of class" through "formulating material in their own words" to "asking for clarification"--are part of what one might term "an expanded student role." This expansion goes beyond a merely acceptable or obedient role. A student who shows a high frequency of these behaviors will be called a "good student" or "a highly motivated student." Because these behaviors are covert and difficult to observe, the teacher finds it difficult to compel students to perform them. He may, for example, urge students to ask questions when they don't understand, but he can hardly detect confusion in a student's mind or discipline him if he does not ask a question. These behaviors can only be controlled by the student's feeling of reward for performing them. The difference, then, between the low achieving student and the high achieving student is the willingness and ability to assume an expanded student role--performing all twelve behaviors on the inventory at a high frequency level. On the other hand, the difference between the low achieving student and the dropout is in his willingness and ability to maintain even a minimal student role--performing the first six behaviors on the inventory at a moderate frequency.

The first function of Learning Counseling is to make sure that the student knows how to perform all twelve behaviors and to teach those behaviors which are not known. The second function is to arrange reinforcement within the counseling sessions to increase these behaviors to a frequency level where they can produce greater classroom achievement. The classroom can then maintain and even increase their frequency further but only if the class is capable of rewarding this expanded student role. School A, despite its authoritarian nature and its heavy emphasis on maintaining the minimal student role, was able to reward this expanded student role by conferring higher grades and teacher approval. The simple maintenance of the instructional organization of the school--classes meeting regularly and teachers continuing on their schedule of course objectives--allowed school A to do this. School B, on the other hand, was not able to maintain a minimal instructional organization and was, therefore, incapable of providing enough reward to maintain the expanded student role. Therefore, the Learning Counseling Program was not nearly as effective in producing an extended behavioral change in the students at school B as it was in school A.

The Learning Behavior Inventory appears to be a useful tool in evaluating behavioral change of underachieving students. The consistent pattern of rank ordering frequency found among students and teachers aids in

conceptualizing and measuring two levels of student roles--the minimal and the expanded. The measured differences in change of student performance in school A and school B is one bit of evidence for construct validity of the Learning Behavior Inventory. Further expansion and research with the Learning Behavior Inventory appears to be justified.

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Table 1 - Teacher Evaluation Schedule

Observed Behavior	Rarely	Sometimes	Frequently	Generally	Almos Alway
1. Attends class regularly					
2. Pays attention in class					
3. Takes notes on class material					
4. Completes class and homework assignments					
5. Participates in class discussion					
6. Asks for clarification when needs it					
7. Works cooperatively with teacher and other students					
8. Tries to formulate material in own words					
9. Tries to organize material into relevant units					
10. Shows evidence of studying outside of class					
11. Shows evidence of reviewing for tests					
12. Takes tests carefully					

Table 2 - Rank Order of Twelve Learning Behaviors in Frequency

1.	Attends class regularly	Teacher Controlled
2.	Pays attention in class	
3.	Completes class and homework assignments	
4.	Takes tests carefully	
5.	Works cooperatively with teacher and other students	
6.	Shows evidence of reviewing for tests	
7.	Shows evidence of studying outside of class	Student Controlled
8.	Tries to formulate material in own words	
9.	Takes notes on class material	
10.	Participates in class discussion	
11.	Asks for clarification when needs it	
12.	Tries to organize material into relevant units	

Concordance of four schools -- Teachers and students	W = 0.73
Concordance of four schools -- Teachers	W = 0.79
Concordance of four schools -- students	W = 0.79

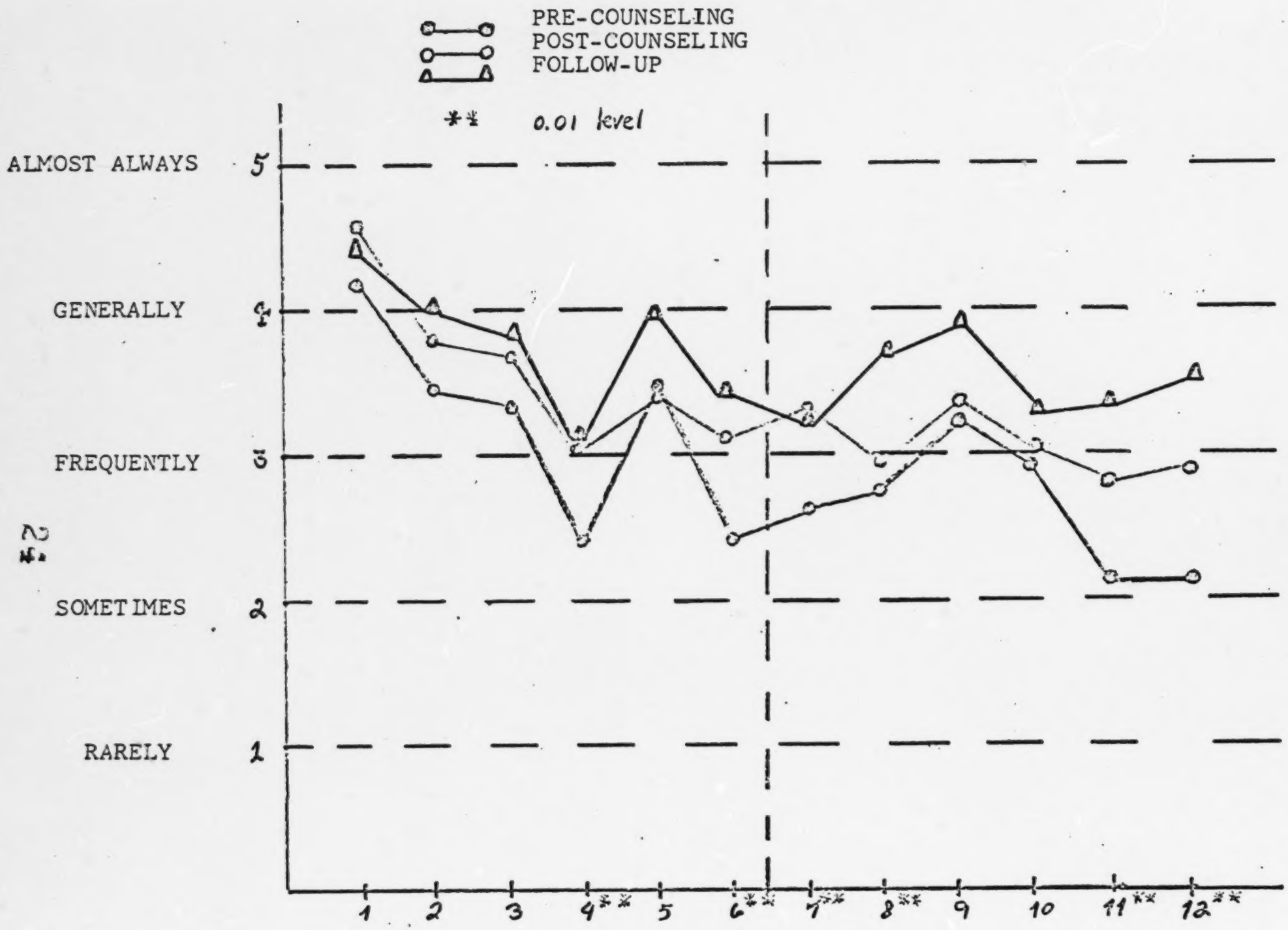

FIGURE 1 - CHANGE IN LEARNING BEHAVIOR INVENTORY AT SCHOOL A

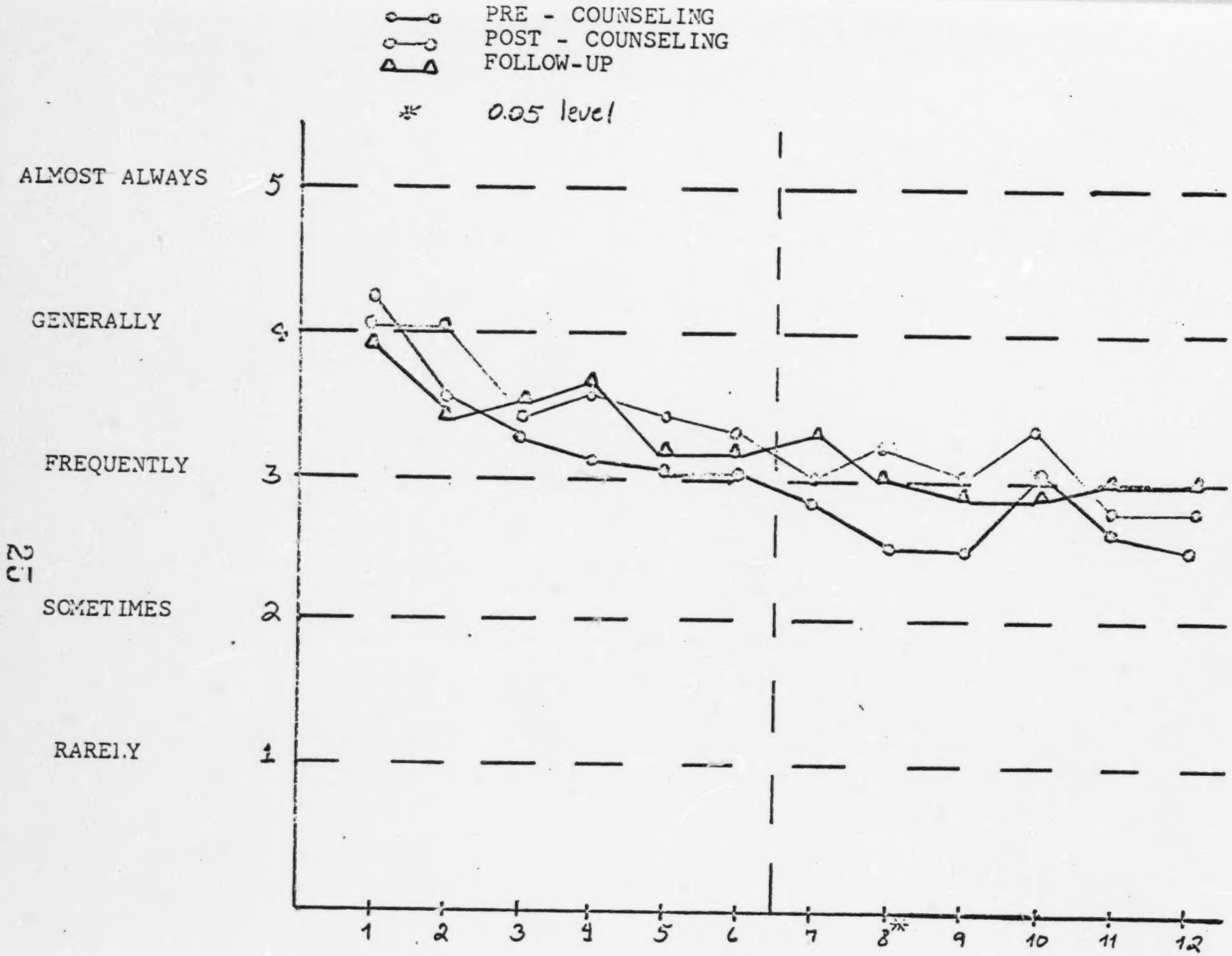

FIGURE 2 - CHANGE IN LEARNING BEHAVIOR INVENTORY IN SCHOOL B

Appendix 2 DEC 2 1971

LEARNING COUNSELING -- A BEHAVIORAL SYSTEM APPROACH TO UNDERACHIEVER COUNSELING

by

David J. Reynolds, Temple University
and
Learita Garfield, Pittsburgh Board of Public Education

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Theoretical Formulation

Learning Counseling has evolved over the past six years into a flexible, small group counseling method designed to improve the academic performance of low achieving students. Its range of operations stretches from the sixth grade through the second year of college and includes all academic subjects. To give an idea of the current extension of the program, over 700 students were counseled by 15 part-time counselors working at the secondary level, mostly in the Pittsburgh school system, and five part-time counselors working on the college level. Twelve trainee counselors are currently completing their internship experience after participating in a summer workshop offered at the University of Pittsburgh.

Its theoretical basis for analysis lies in a systems analysis or operations research point of view; its theoretical basis for designing intervention strategies and for developing program tactics lies in behavior modification theory and small group dynamic theory. In analyzing the educational process, an assumption is made that the basic unit of the educational -- usually the classroom -- system consists of three elements -- the teacher, the materials (text book, audio visual materials, etc.) and the student. All three of these are in mutual interaction with each other; the teacher-materials interaction is a process called preparation, the teacher-student interaction is a process called instruction, and the student-materials interaction is a process called study. This basic unit is repeated many times in different subjects for each student as he progresses from one educational level to another. The ultimate purpose of the educational system is to produce an

educated, independent learner, who has gained some of the wisdom of the culture and who can function in our society. This analysis may seem very simple and rather obvious, yet its simplicity allows for an analysis of any individual student's situation and leads directly to specific strategies to improve his learning progress. In almost all cases, the student can be helped by adjusting one of the interactions in his particular unit. Most educational improvement effort has been concerned with changing the materials and teacher elements; Learning Counseling is concerned with direct change of the student element so that he can exercise greater control and skill in his interactions with his materials and teachers.

Each interaction within his basic unit consists of a totality of experiences for the student. This experience consists, psychologically, of cognitive, affective and behavioral components. Behavior modification theory points out correctly that an outside observer can only directly observe and measure behavior. For example, a student may dislike his teacher, but unless he displays it or verbalizes it, no one will ever know. Since overt expressions are the only information source available for understanding and predicting an individual, it must be the key focus for any management or change of behavior effort. Learning Counseling provides a climate that encourages the student to display and examine his knowledge, his attitudes, his anxieties, and his skills, with sympathetic help aimed at improving them.

Behavior modification provides for Learning Counseling a systematic and consistant framework for identifying problems and planning for their solution in behavioral, measurable terms. Its basic posture of building in desirable behavior through positive reinforcement makes it a safer and more effective therapeutic framework than competing alternatives. It uses a variety of general techniques -- modeling, shaping, extinction -- which can be easily adapted to a particular student in his educational situation. In addition, this framework and its associated techniques can be taught to and effectively used by educators at the level of classroom teacher and counselor.

The small group (five to ten members) appears to be the preferred social interaction model for adolescents and young adults (Coleman, 1959). It provides relief from the competitive climate of our educational system and serves as a vehicle for social growth toward adulthood. Its typical supportive and accepting climate makes it easier for the student to display his beliefs, feelings and skills. It provides a cover for a feeling of inadequacy, but at the next moment, might provide a stage for a display of competency. It has particular significance for minority students attemping to achieve an identity in the larger educational system (Clark, 1970).

The dynamics of a small group allow greater information transmission and potential reinforcement. For some students, peer evaluation and reinforcement is the only therapeutic contact they are willing to accept. The small group, therefore, increases the effectiveness of behavior management

techniques. It widens the repetoire of modeled behavior, it increases the variety of reinforcement, and it intensifies the reinforcement or extinction effect. Learning Counseling, in using a small group format, amplifies the power of its behavior modification framework.

Operation of the program

The operational implementation of Learning Counseling, because it is drawn from a simple and consistent framework, follows a clear, systematic procedural plan (Reynolds, Garfield and Jeffress, 1970). There is surprisingly little variability in group to group operation, whether it occurs on the sixth grade level or on the college level. There is, however, great variation in the type of student serviced by the program. A student shares the counseling experience with five to ten classmates in a task oriented, small group which meets twice a week during a period averaging nine weeks. All of these students share the same course with the same teacher, whether it be Algebra II or Psychology I. The first three sessions are specifically programmed. They provide for the establishment of rapport, the determination of the base level of performance of each student, the explanation of the objectives of the program, and a clear description of the skills the group will be asked to develop during the course of their total counseling experience. From the fourth session on, the counselor helps the group apply the systematic study method to the specific content material currently assigned by their classroom instructor. The counselor reinforces all desirable learning behavior which improves their interaction with course materials and instructor--and ultimately improves their course achievement. Rather than tutoring the students, the counselor (usually unfamiliar with the specific course material) adopts the role of fellow student and models the learning behaviors he wants the student to use.

The specifically programmed behavioral sequence which the counselor models is a seven step study sequence (Reynolds and Garfield, 1969). The sequence literally labels and describes behaviors typically performed by good students in order to understand and remember content material. The counselor adapts the group process to allow for the different skill and motivational level. As the students show evidence of adopting this sequence in the counseling sessions, the counselor gradually broadens his reinforcement to include a general pattern of learning behavior that more completely approaches that of the "ideal student." A key factor in this entire process is achieving the necessary number of reinforced repetitions until the students experience enough understanding and control of their material to convince them that this sequence of behavior allows them to perform at their best. To move the group toward this goal, the counselor consciously uses his reinforcement within a shaping procedure that rewards each student for each improvement that approximates the final goal. The shaping process proceeds along three dimensions: (1) the level of behavior (simple to complex), (2) the quality of behavior (approximate to more precise) and (3) the independent use of the

behavior (group-supported to individual responsibility). Along with this shaping process, the counselor tries to extinguish inappropriate learning behaviors the students have customarily used. This is done by ignoring the behavior and/or suggesting an appropriate substitute behavior. In order to manage the behavioral progress of each student, the counselor must keep continuous accurate records of each counseling session.

Because the members of the group share a common concrete task for which they are accountable, a sense of group "espirit de corps" usually develops. Group cohesion is further enhanced by the counselor's expectations--each member will help every other member--and they will avoid harsh criticism. Moreover, the counselor models his own acceptance of these rules as he participates in the study sessions as a fellow student who can make mistakes. As the group develops more successful learners, they develop a greater willingness to share corrective feedback and to verbally express both their frustrations and positive feelings about their learning experience. It is at this point that the counseling can take on a broader perspective, discussing a general student role and the transfer of their skill to other content areas. After the formal sessions are complete, students are able to continue this process in a learning lab, where they have an opportunity to work with the counselor or other students on any learning problems they may have.

Results

The major behavioral evaluation instrument is the Learning Behavior Inventory, a checklist rating frequency of occurance for each of twelve desirable student behaviors on a five-point scale. It is completed by both students and their teachers at the beginning of counseling and at the end of the formal counseling period, approximately eight to ten weeks later. Table I presents data compiled on 82 groups counseled during the 1969-1970 school year. (show slide 1) The student self-report shows significant increase in only three of the twelve behaviors--"Formulates material in own words," "Organizes material into relevant units" and "Reviews materials for tests." However, the total Learning Behavior Inventory shows a significant increase, since small increases in the other behaviors, while insignificant in themselves, have accumulated into an increased total behavioral pattern. The teacher evaluation side of Table I (show slide 2) shows that the teachers of these students observed a lower frequency of desirable behaviors than the students themselves. However, the teachers found highly significant increases in every behavior and in the total score. These data, evaluated by a conservative method of using the group mean as a basic unit of data, suggests strongly that one of the effects of Learning Counseling is a more desirable pattern of behavioral interactions with both materials and teachers.

The affective components of the students' experience, although more intangible and individual, revolve around two main factors, a general evaluation along a positive-negative dimension and an indication of intensity of felt anxiety in educational situations. These two factors are measured by student self-report on a Semantic Differential and a Fear Survey Inventory. (show slide 3) Table 2 presents data on the same 82 groups. The Semantic Differential measures attitudes toward five school-related concepts--"Studying," "My Class," "Tests," "Myself as a Student" and "Teachers." Significant increases in positive attitude are found on the first four concepts. The fifth concept, "Teachers," was already quite high on base level pre-measurement and thus was unlikely to show any marked change.

The Fear Survey Inventory is designed to measure anxiety towards six common anxiety producing school situations--"Being called upon in class," "A test is announced in class," "Studying for a test," "Taking a test," "Making test mistakes" and "Surprise tests." (show slide 4) Significant reductions in the degree of anxiety shown are found in all six situations, as well as in the Fear Survey Inventory total score. Thus the behavioral changes are accompanied by more positive attitudes and less anxiety on the part of the students.

The cognitive component of a student's experience, while ultimately the most important, is also the most difficult to measure. One measure of this behavioral component is the grade change in the counseled subject. Since grade changes may be influenced by teacher subjectivity and other factors, a particular effort was made to obtain control data and obtain external evaluation. Table 3 presents a sub-sample of 246 students drawn from one participating high school. Both experimental and control groups had earned the same first report period grade from the same teacher in the same subject--whether A, B or E--a failing grade. Tabulations were made into two or three categories: increase of grade at some point during the school year, decrease in grade, or no change in grade. Evaluation by chi square indicated no significant difference in students receiving A or B grades. Students receiving C grades showed a trend favoring the experimental group, significant at the 0.10 level, while the trend for D and E students clearly favored the experimental Learning Counseling group, significant at the 0.05 level. This recent sub-sample augments a previous similar finding reported in the literature, (Reynolds and Garfield, 1969).

Further evaluation of the cognitive component by achievement tests is planned. Presumably the behavioral changes brought about by Learning Counseling not only improved student attitudes but helped to reduce the number of failing grades.

Discussion

One of the advantages of the behavioral systems approach used in the Learning Counseling design is that, unlike separate behavior modification programs, it derives its objectives and procedures from the larger system it seeks to serve. Thus the traditional problem of transfer and generalization to existing environmental control is avoided. By improving the effectiveness of the student element of the educational system, the functioning of the entire unit moves more smoothly towards its goal. Counseled students study and interact more productively with their teachers and the classroom climate provides greater satisfaction and productivity for all the students. Thus the temporary intervention of counseling can be sustained by the more fully functioning classroom.

The behavior modification framework, with its exclusive emphasis on behavioral change, represents a reversal of the traditional educational approach towards improving student performance; that is, it asks only that the student begin to do the behavior, while it assumes responsibility for modeling, shaping and reinforcing his initial effort. Traditionally, educational counseling assumes that it must motivate the student first, then the desired performance will follow. The behavioral techniques allow one to proceed effectively even with minimal motivation on the part of the student. This program's non-volunteer students, particularly those students achieving at the lowest levels, benefited from the systematic, task-centered approach geared to their level. The small group format, with its greatly intensified reinforcement potential is probably a major component in controlling motivation. The total change--behavioral, affective and cognitive--demonstrates that the major goals of all types of academic counseling can be achieved through this approach. It is thus not surprising that student evaluation of the program by unsigned questionnaire is very positive. Ninety per cent of the students consider the program helpful or very helpful, and over fifty per cent request additional counseling beyond their eight to ten week period.

Behavior modification provides a powerful change technique, but needs guidance as to what is worth-while changing. When integrated with the systems analysis approach, objectives and the procedures for achieving them become both clear and feasible. The Learning Counseling program is an example of how these two theoretical models can be combined to solve an important educational problem. It thus serves as a possible prototype for approaching other educational problem areas.

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TABLE 1

Student Self-Report and Teacher Evaluation of Behavioral Change
Learning Behavior Inventory, 82 groups, 1969-70
Five Point Scale of Frequency -- "Almost Always" - 5 to "Rarely" - 1

VARIABLE	STUDENT			TEACHER		
	Pre	Post	F-ratio	Pre	Post	F-ratio
"Attends"	4.70 0.34	4.62 0.41	3.35	4.44 0.88	4.60 0.73	17.43 **
"Pays Attention"	3.83 0.48	3.88 0.52	0.88	3.29 1.19	3.54 1.17	22.49 **
"Takes Notes"	2.89 0.93	2.93 0.93	0.27	2.63 1.32	3.00 1.37	39.24 **
"Completes Work"	3.77 0.69	3.78 0.64	0.002	3.30 1.26	3.54 1.26	17.95 **
"Participation"	3.15 0.58	3.16 0.61	0.07	2.62 1.29	2.81 1.32	9.88 **
"Asks for Clarification"	3.08 0.64	3.11 0.66	0.17	2.30 1.30	2.78 1.37	62.90 **
"Cooperates"	3.59 0.61	3.69 0.61	2.25	3.05 1.20	3.52 1.22	57.75 **
"Formulates"	3.45 0.57	3.58 0.64	4.27 *	2.47 1.17	2.82 1.24	37.13 **
"Organizes"	3.19 0.60	3.43 0.60	11.04 **	2.44 1.13	2.82 1.23	43.77 **
"Studies Materials"	3.10 0.75	3.11 0.74	0.00	2.63 1.24	3.05 1.28	48.98 **
"Reviews Materials"	3.45 0.71	3.61 0.70	6.76 *	2.69 1.23	3.15 1.30	67.52 **
"Takes Tests"	3.97 0.48	4.01 0.57	0.34	2.94 1.23	3.33 1.21	42.06 **
Learning Behavior Inventory Total Score	41.91 5.14	42.96 5.12	4.14 *	34.84 11.51	38.90 12.02	72.15 **

* .05 Level
** .01 Level of Significance, Repeated Measures Analysis of Variance

TABLE 2

Affective Components of Students' Experience

Semantic Differential -- Low - 6 to High - 42 Fear Survey -- Low - 0 to High - 4

VARIABLE	PRE	POST	F-RATIO
Semantic Differential			
"Studying"	27.18 3.72	28.85 3.37	18.40 **
"My Class"	27.69 4.82	29.56 4.62	16.35 **
"Tests"	26.74 4.06	28.94 3.78	34.96 **
"Student"	30.30 3.46	31.41 3.36	8.77 **
"Teachers"	31.14 3.60	31.43 3.77	0.62
Fear Survey Inventory			
"Calls Upon	1.94 0.45	1.66 0.42	41.54 **
"Announce Tests"	1.79 0.47	1.46 0.52	29.92 **
"Study for Test"	1.73 0.55	1.42 0.54	23.15 **
"Take Test"	1.93 0.51	1.54 0.47	51.80 **
"Test Mistakes"	1.85 0.44	1.60 0.46	25.01 **
"Surprise Test"	2.30 0.46	1.99 0.42	32.49 **
Fear Survey Total	11.54 2.16	9.80 2.34	64.17 **

** .01 level of significance, Repeated Measures Analysis of Variance

TABLE 3

Grade Changes in Sub-Sample of 246 Students

GROUP		"INCREASE"	"DECREASE"	"NO CHANGE"	d F	CHI SQUARE
A's	Exper.	---	4	4	1	0.12
	Control	---	3	2		
B's	Exper.	4	17	5	2	0.57
	Control	5	17	3		
C's	Exper.	8	13	12	2	4.96 y
	Control	5	20	5		
D's	Exper.	20	15	5	2	6.88 *
	Control	10	16	13		
E's	Exper.	19	---	9	1	4.21 *
	Control	5	---	12		

y = .10 level

* = .05 level